

**REMARKS**

**Applicant has used the status identifier “Withdrawn-currently amended” to reflect amendments to withdrawn claims 11-14, 68, and 69. Applicant notes that 37 C.F.R. 1.121 and M.P.E.P. § 714 list “Original,” “Currently amended,” “Canceled,” “Withdrawn,” “Previously presented,” “New,” and “Not entered” as the status identifiers to be used to indicate the status of the claims and that subsection C(E) of M.P.E.P. § 714 lists “Withdrawn-currently amended” as an acceptable alternative for “Withdrawn.”**

Claim 1 has been amended to delete the term “anthraflavic acid,” to improve antecedent basis, and to correct grammatical errors. Claims 4-8 have been amended to correct grammatical errors. Claim 10 has been amended to improve antecedent basis. Withdrawn claims 11-14, 68, and 69 have been amended to improve antecedent basis and to correct grammatical errors. Withdrawn claim 14 has been amended to depend from claim 68. No new matter has been added.

The Office Action mailed August 18, 2006, has been received and reviewed. Claims 1-8, 10-14, 16-25, 68, and 69 are currently pending in the application, of which claims 1-8, 10, 16-19, and 22 are currently under examination. Claims 11-14, 20, 21, 23-25, 68, and 69 are withdrawn from consideration as being drawn to a non-elected species. Claims 1-8, 10, 16-19, and 22 stand rejected. Applicant has amended claims 1, 4-8, 10-14, 18, 68, and 69 (including amendments to withdrawn claims 11-14, 68, and 69), and respectfully request reconsideration of the application as amended herein.

**35 U.S.C. § 103(a) Obviousness Rejections**

**Obviousness Rejection Based on U.S. Patent No. 5,449,423 to Cioffe**

Claims 1-8 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,449,423 to Cioffe (“Cioffe”). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for an obviousness rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references

themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The obviousness rejection of claims 1-8 and 22 is improper because the cited reference does not teach or suggest all of the limitations of claim 1. In addition, there is no motivation to produce the claimed invention.

Cioffe teaches an explosive composition that includes potassium perchlorate, an organic or inorganic nitrate, and an organic acid or salt of the organic acid. Cioffe at column 1, line 60 through column 2, line 2. The organic acid has a chemical formula of  $C_6H_8O_6$  and is ascorbic acid, erythorbic acid, 5,6-carbonyl ascorbic acid, 5,6-erythorbic acid, D-glucuronolactone, isoascorbic acid, tricarballic acid, salts thereof, or mixtures thereof. *Id.* at column 5, lines 38-45. Organic acids having more than six carbon atoms may be used if the compound has a similar reactivity to the  $C_6H_8O_6$  compounds. *Id.*

Cioffe does not teach or suggest all of the limitations of independent claim 1. As acknowledged by the Examiner, Cioffe does not teach or suggest "the claimed organic crystalline particle[s]." Office Action of August 18, 2006, p. 2. Therefore, Cioffe does not teach or suggest the limitation in claim 1 of "organic crystalline particles accounting for from about 10 weight percent to about 60 weight percent of the total weight of the solid pyrotechnic composition, wherein the organic crystalline particles comprise an organic crystalline compound comprising at least one of phenolphthalein, an organic crystalline compound derived from a reaction between a phenolic compound and phthalic anhydride, fluorescein, 1,5-naphthalenediol, and terephthalic acid."

Cioffe also does not provide a motivation to produce the claimed invention. To provide a motivation or suggestion to combine, the prior art or the knowledge of a person of ordinary skill in the art must "suggest the desirability of the combination" or provide "an objective reason to combine the teachings of the references." M.P.E.P. § 2143.01. "To support the conclusion that

the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” M.P.E.P. § 2142. “In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.” M.P.E.P. § 2143.

The Examiner states that “[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to use terephthalic acid (with 8 carbons) since Cioffe discloses that similar compounds to ascorbic acid with more than 6 carbons may be used.” Office Action of August 18, 2006, p. 2. Applicant respectfully submits that this line of reasoning is not sufficient to support a *prima facie* case of obviousness. While Cioffe teaches that organic acids having more than six carbon atoms may be used, Cioffe does not provide examples of organic acids having more than six carbon atoms. Rather, the teachings of Cioffe are limited to compounds with the chemical formula of  $C_6H_8O_6$  and to the fact that compounds having more than six carbon atoms may be used. Therefore, Cioffe does not suggest the desirability of, or provide an objective reason for, the recited organic crystalline particles. Cioffe also does not provide any teaching or suggestion of compounds that have a similar reactivity to the  $C_6H_8O_6$  compounds or for determining such compounds.

In addition, the teachings of Cioffe are not sufficient for one of ordinary skill in the art, having the reference before him, to make the proposed modification. Since the teachings of Cioffe are limited to compounds having the chemical formula of  $C_6H_8O_6$  and to the fact that compounds having more than six carbon atoms may be used, the teachings of Cioffe are not sufficient to produce the claimed invention having the specific, recited organic crystalline particles. Cioffe does not provide any motivation or suggestion for the recited organic crystalline particles. “The fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious.” M.P.E.P. § 2144.08. Since the chemical structures of the recited organic crystalline particles are not similar to the chemical

structures of the  $C_6H_8O_6$  compounds taught in Cioffe, one of ordinary skill in the art would not have been motivated to use the recited organic crystalline particles based on the teachings of Cioffe.

Since Cioffe does not teach or suggest all of the limitations of claim 1 and does not provide a motivation to produce the claimed invention, the obviousness rejection is improper and should be withdrawn.

Claims 2-8 and 22 are allowable, *inter alia*, as depending from an allowable base claim.

Obviousness Rejection Based on Cioffe as applied to claims 1-8 and 22 above, and further in view of U.S. Patent No. H72 to Wise *et al.*

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cioffe as applied to claims 1-8 and 22 above, and further in view of U.S. Statutory Invention Registration No. H72 to Wise *et al.* ("Wise"). Applicant respectfully traverses this rejection, as hereinafter set forth.

Wise teaches a black powder substitute that includes potassium nitrate, sulfur, and an organic crystalline compound. Wise at the Abstract. Upon ignition, the sulfur in the black powder substitute is chemically reduced and provides less reactivity to the organic crystalline compound. *Id.* at column 7, line 65 through column 8, line 2 and column 9, line 26 through column 10, line 7. The organic crystalline compound is fluorescein, phenolphthalein, 1,5-naphthalenediol, phenolphthalin, anthraflavic acid, terephthalic acid, alkali metal salts thereof, mixtures thereof, quinalizarin, quinizarin, leucoquinizarin, hydroquinone, catechol, salts thereof, and mixtures thereof. *Id.* at column 2, lines 31-44.

Claim 10 is allowable, *inter alia*, as depending from an allowable base claim.

The cited references also do not provide a motivation to combine to produce the claimed invention because Wise teaches away from combination with Cioffe. The black powder substitutes of Wise include sulfur to provide the desired energetic performance and properties. However, nothing in Wise provides any motivation or suggestion to use the organic crystalline compounds, such as phenolphthalein, in a composition that is free of sulfur, as recited in claim 1. Cioffe also does not provide any motivation or suggestion to use the organic crystalline

compounds for the reasons previously discussed.

Furthermore, if Cioffe and Wise were combined, the claimed invention would not be produced because the resulting composition would include sulfur.

Since Cioffe and Wise do not provide a motivation to combine to produce the claimed invention, the obviousness rejection of claim 10 is improper and should be withdrawn.

Obviousness Rejection Based on Cioffe as applied to claims 1-8 and 22 above, and further in view of U.S. Patent No. 5,620,691 to Weber

Claims 16-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cioffe as applied to claims 1-8 and 22 above, and further in view of U.S. Patent No. 5,620,691 to Weber ("Weber"). Applicant respectfully traverses this rejection, as hereinafter set forth.

Weber teaches a black powder substitute that is free of charcoal. Weber at the Abstract. The black powder substitute includes unconverted phenolphthalein, potassium nitrate, and sulfur in a binding phase of phenolphthalein salt. *Id.* at column 1, lines 38-43. The black powder substitute also includes a binder, such as a vinyl alcohol acetate resin or a polyvinyl alcohol resin. *Id.* at column 2, lines 61-66.

Claims 16-19 are allowable, *inter alia*, as depending from an allowable base claim.

The cited references also do not provide a motivation to combine to produce the claimed invention. The black powder substitutes of Weber include sulfur to provide the desired energetic performance and properties. However, nothing in Weber provides any motivation or suggestion to use phenolphthalein in a composition that is free of sulfur, as recited in claim 1. In addition, Cioffe does not provide any motivation or suggestion to use phenolphthalein for the reasons previously discussed.

Furthermore, if Cioffe and Weber were combined, the claimed invention would not be produced because the resulting composition would include sulfur.

Since Cioffe and Weber do not provide a motivation to combine to produce the claimed invention, the obviousness rejection of claims 16-19 is improper and should be withdrawn.

### ENTRY OF AMENDMENTS

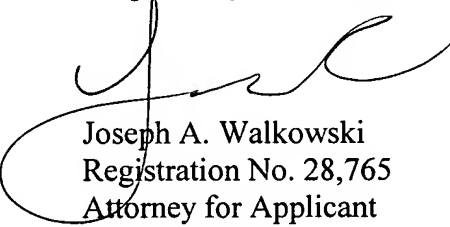
The amendments to claims 1, 4-8, 10-14, 18, 68, and 69 should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add new matter to the application.

Applicant considers claim 1 to be generic and notes that upon allowance of a generic claim, claims depending therefrom in a non-elected species would also be allowable. As such, claims 11-14, 20, 21, 23-25, 68, and 69 would be allowable as depending from claim 1.

### CONCLUSION

Claims 1-8, 10-14, 16-25, 68, and 69 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



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